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IS 9003 (1978): Acrylizer (curing unit) [MHD 8: Dentistry]

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SPECIFICATION FOR ACRYLIZER (CURING UNIT)

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Indian Standard

SPECIFICATION FOR ACRYLIZER (CURING UNIT)

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Indian Standard

SPECIFICATION FOR ACRYLIZER (CURING UNIT)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 22 November 1978, after the draft finalized by the Dental Equipment Sectional Committee had been approved by the Consumer Products and Medical Instruments Division Council.

0.2 This standard is one of the series of Indian Standards on dental equipment and instruments and has been formulated at the instance of the Advisory Committee for Development of Surgical Instruments, Equipment and Appliances, Government of India.

0.3 Acrylizer (curing unit) is used extensively by the dental profession for curing the acrylic appliances. This standard covers functional requirements and is expected to help in providing equipment of uniform quality consistent with ease of operation.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2 - 1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements for acrylizer used in curing acrylic appliances.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Acrylizer — A covered container for use with internal heating by electricity, capable of regulating and maintaining the required temperature of water as desired for a specific period between 30°C and 100°C with preset time intervals by means of a separate automatic time relay switch.

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*Rules for rounding off numerical values (*revised*).

2.2 The full liquid capacity of the vessel, that is, total internal volume with lid in position. The container shall be adequate to cure 4 to 8 average size of the flasks.

2.3 The nominal capacity of the acrylizer shall be as agreed to between the purchaser and the supplier and shall be expressed only in complete or half litre units. No negative tolerance shall be allowed on the nominal capacity.

Note — If the capacity of the acrylizer is not in complete or half litre units, its nominal capacity shall be marked as the nearest lower complete half litre. For example, in the case of an acrylizer having a capacity of 25·9 litres, the nominal capacity to be marked shall be 25·5 litres.

2.4 The capacity of the acrylizer shall be tested as given in Appendix A.

3. MATERIALS

3.1 All components of the acrylizer, including the bath, gaskets, heating elements, thermostat, shield and internal accessories which come in contact with the dentures shall be made of materials satisfying the following requirements:

a) They shall not discolour the materials to be cured.

b) They shall not be affected by contact with the materials to be cured in the acrylizer in such a way that the operation efficiency or safety of the acrylizer is impaired.

3.2 Body and Lid — The body of the acrylizer shall be made from copper sheet conforming to Grade 1 of IS : 1550 - 1967* or stainless steel sheet conforming to Designation 04Cr18Ni11 or 07Cr18Ni9 of IS : 6603-1972†. The lid may be made from aluminium sheet conforming to H_2 condition of IS : 737 - 1974‡ or stainless steel sheet conforming to IS : 6603-1972†. A suitable hole for the insertion of a thermometer shall be provided in a convenient position on the lid. The lid shall fit tightly on the body. A tube of 50 mm length and internal diameter of 4 mm with a right angle bent on the top shall be fitted for the passage of steam.

3.2.1 Thick copper or stainless steel shield of the same composition as that of body shall be used to protect the heater and the thermostat. The shield shall be placed inside the acrylizer and shall have sufficient strength to carry the weight of the flasks placed on it. The size of holes in the shield shall be adequate to permit free circulation of hot water without any impediment.

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*Specification for copper sheet and strip for utensils and for general purposes (*first revision*).

†Specification for stainless steel bars and flats.

‡Specification for wrought aluminium alloys, sheet and strip (for general engineering purposes) (*revised*).

3.3 Gaskets — The gaskets shall conform to IS : 7466 - 1974* for steam joining similar to Klingerit or fire fly high pressure steam jointing being used.

3.4 Handles — Handles shall be made from ebonite. The handles fitted to the body shall be of sound construction to lift the total weight of the acrylizer when loaded.

3.5 Temperature Regulating Device — The thermostat shall be sufficiently sensitive to operate within ± 5°C and shall have contacts sufficiently sturdy to carry at least 20 A ac continuously.

3.6 Signal Lamps — Signal lamps of 230 V ac shall be provided on the front control panel to indicate the ON and OFF operation of the thermostat and also to indicate time delay when the acrylizer is working.

3.7 Indication for the water level may also be marked on the bath.

3.8 A suitable safety valve shall be provided to avoid excess pressure inside the container.

3.9 Immersion Heater — The electric immersion heater shall be of sufficient wattage for the capacity of the acrylizer and of a sturdy construction for continuous operation.

3.10 A 4-pin plug shall be provided on the left side of the control panel to connect it with the automatic clock and time delay device.

3.11 A drain cock shall be provided on the left side of the body on a low level to drain vessel for cleaning and inspection.

4. SHAPE AND DIMENSIONS

4.1 The essential shape and dimensions of acrylizer shall conform to Fig. 1 and 2.

5. CONSTRUCTION

5.1 The construction of the acrylizer shall be suitable to ensure an easy and safe handling, good performance and a reasonable life. The acrylizer shall be so constructed that no distortion takes place under normal conditions of use.

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*Specification for rubber gaskets for pressure cookers.

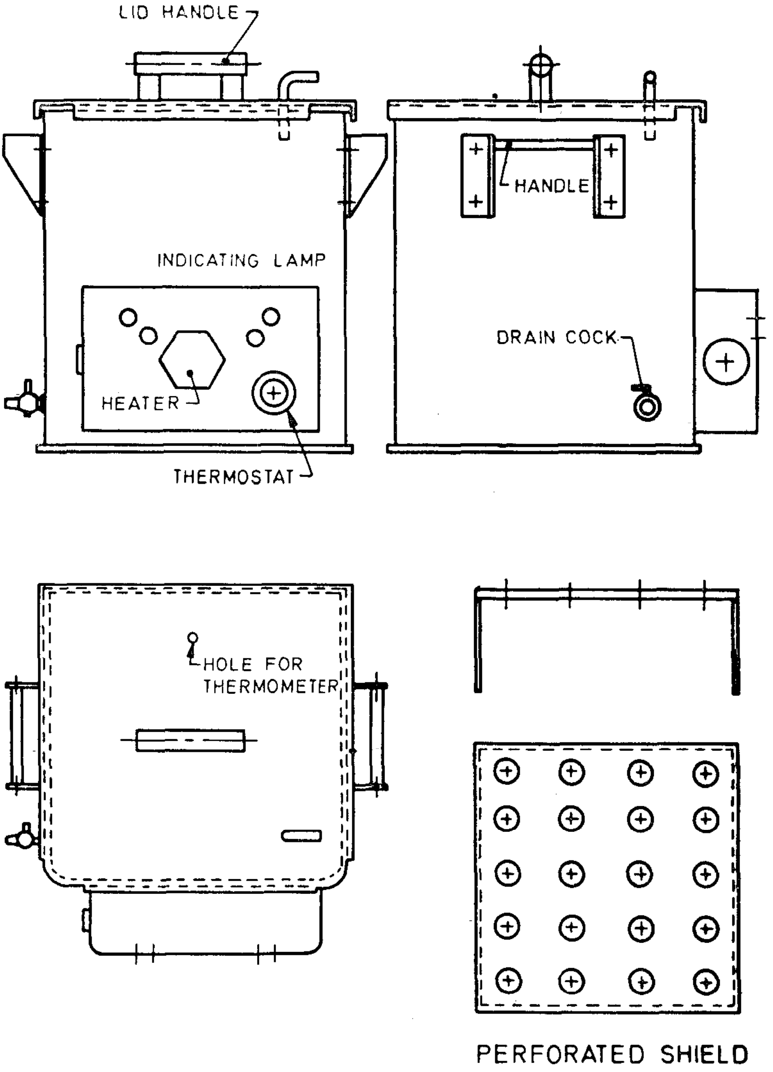

Fig. 1 Acrylizer (Curing Unit)

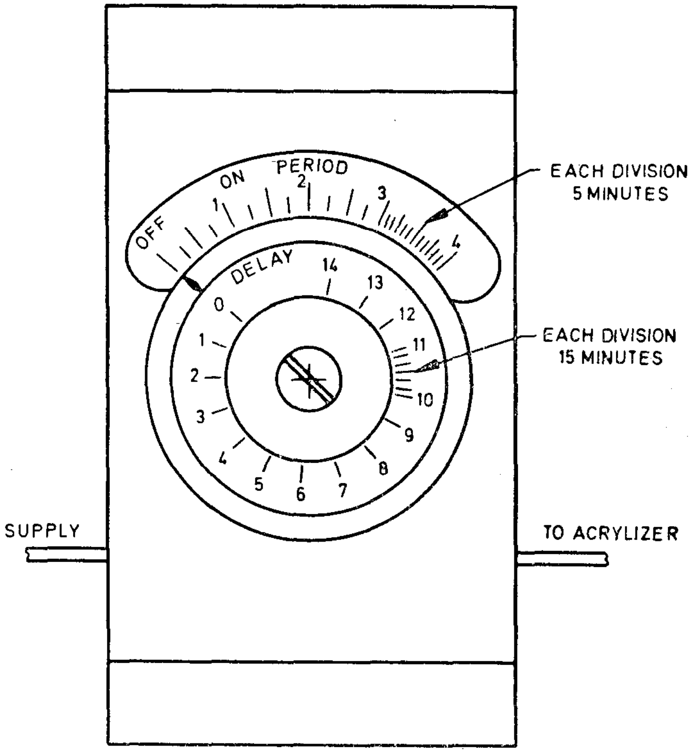

FIG. 2 AUTO CLOCK WITH TIME DELAY

6. WORKMANSHIP AND FINISH

6.1 The body and the lid shall be free from wrinkles, scratches, and other surface defects. The body, lid and the shield shall be neat and clean. The acrylizer unit if made of copper shall be plated chromium over nickel and the plating shall conform to Service Grade No. 2 of IS : 4827 - 1966* respectively.

7. AUTOMATIC TIME CONTROL

7.1 The automatic time control shall be designed to operate on single phase, 200/250 V ac. The working hour dial shall be graduated in the intervals of 5 minutes and shall be capable of working continuously for 4 hours. It shall be capable of working with a time delay which can be set from 0 to 14 hours and graduated in the intervals of 15 minutes. The contacts should be sturdy enough for 25 to 30 A ac at 250 V, 50 Hz, irrespective of load.

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*Specification for electroplated coatings of nickel and chromium on copper alloys.

7.2 Suitable 3-way power plugs (15 A, 230 V) of a sturdy construction shall be provided with sufficient length of cord to reach the clock (3 m, *Min*) and from clock to acrylizer (2 m, *Min*).

8. INSTRUCTIONS FOR USE

8.1 The manufacturer shall supply full-illustrated working instructions with each acrylizer also indicating the capacity of the acrylizer.

9. MARKING

9.1 Each acrylizer shall be marked with its capacity, the name or recognized trade-mark of the manufacturer and information whether the body and the lid is made of copper or stainless steel or aluminium (for lid).

9.2 Each acrylizer shall also be indelibly and legibly marked with a notice emphasizing the reading of instructions before use, for example, 'IMPORTANT ! READ INSTRUCTIONS BEFORE USE'.

9.3 The acrylizer may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10. PACKING

10.1 Each acrylizer shall be suitably packed in carton with suitable cushioning for safe transport.

APPENDIX A

(*Clause* 2.4)

CAPACITY TEST

A-1. PROCEDURE

A-1.1 The vessel of the acrylizer shall be filled to the brim with water and the volume of water shall be measured with the measuring jar. This shall give the full liquid capacity of the vessel.

INDIAN STANDARDS ON DENTAL EQUIPMENT

IS:	
5023-1969	Dental unit
5645-1970	Pedestal cuspidor
5655-1970	Foot-operated dental engine
5830-1970	Dimensions for transmission coupling (slip-joint) to dental handpieces
5941-1970	Dental engine, electric
6116-1971	Dental chair
6182-1971	Dimensions for dental cable arm
6183-1971	Dimensions for dental section arm
6846-1972	General requirements for control unit for airturbine, dental
7066-1973	Trays, instrument-cabinet, dental
7348 (Part I)-1974	Glossary of terms relating to dentistry: Part I Dental equipment
7853-1975	Surveyors, cast, dental
8346-1977	Stool operating, dental